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Alabama Girls Technical Institute Bulletin

Better Food and Health For Boys and Girls

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PREFACE

The Alabama Girls Technical Institute gives much attention to the study of dietetics, and it is with pleasure that the Department of Home Economics, in compliance with a request from the State Health Department, offers this bulletin for a study of "Better Food and Health for Boys and Girls."

The data has been compiled from the most authoritative sources, and the manuscript was carefully reviewed by Miss Stella Palmer, of the University of Arkansas, and our thanks are due her for several helpful suggestions.

EVELYN M. HERRINGTON,
Chairman Home Economics Faculty.

INTRODUCTION

S. W. Welch, M. D., State Health Officer.

A vigorous citizenship is a nation's chief asset. Among barbaric tribes, the fittest alone survive. Standards of Christian civilization have imposed upon us the care of the weak and defective. Unless we meet these obligations faithfully, deterioration of the race is inevitable. The efficiency of the methods which the health and school authorities employ in the development of the bodies and minds of the future citizens will be the measure of our usefulness to them.

Studies have been made in several sections of the United States in the last few years with a view of establishing the average height and weight of normal children. The State Board of Health, co-operating with the Department of Education, has recently attempted such a study, hoping to establish the height and weight of normal children at a given age. When this standard is ascertained, the reasons for divergence from it must be considered; and, with this consideration, the best means of combating the evils which cause these divergences should be employed.

With the hope of interesting the teachers, children, mothers, and fathers of Alabama, the State Board of Health, co-operating with the Alabama Girls Technical Institute at Montevallo, presents this tentative study of the balanced diet.

We commend it to your careful study, and request your earnest co-operation in the collection of data for the development of our plans, and for the diffusion of the information contained herein.

Better Food and Health for Boys and Girls

The medicine of the future is prevention. If we look after our breathing, digestion, and elimination of waste, we will seldom be sick.

Attention should be given to the planning of meals for several reasons. The most important reason is to insure good health. In order to have perfect health, we must be certain that we are supplying the needs of our bodies.

Before these needs can be supplied, there must be some method by which we can find out what are the requirements for persons in our physical condition. When this is ascertained a comparison of our regular diet with what we require for good physical and mental conditions will show what is necessary to be changed.

This bulletin has been arranged to assist in the checking up of diets of young people of various ages and conditions in order that they may be able to find more easily the defects of their diets and, by correcting them, become more healthful members of society.

For reference material the following bulletins are suggested:

Daily Meals of School Children, by Caroline Hunt.
Farmers Bulletin Number 3—whole number 403, U. S. Department of Agriculture.
School Lunches, Farmers Bulletin Number 712, U. S. Department of Agriculture.
Food for School Boys and Girls, by Mary Swartz Rose.
Technical Education Bulletin Number 23, Teacher's College, Columbia University. Price 10c.
Food for Growing Children, by Jessie P. Rich.
University of Texas Bulletin Number 342.

In compiling this bulletin, assistance has been obtained from the following sources:

Feeding the Family—Rose.
Basic Principles of Domestic Science—Lila Frick.
Food and War—United States Food Administration.
Human Philosophy—Starling.
Rose—Laboratory Manual of Dietetics.

Food is any substance which when taken into the body supplies it with heat or energy and builds tissues. **Heat is** a form of energy. All foods contain latent energy which when oxidized produces heat. This energy then may be used to keep the body warm or to keep up its various activities so that the vital processes such as digestion, respiration, and circulation may be carried on and also for work and muscular activity. These vital processes are a result of all activity. The food and oxygen are carried to the cells by the blood, and by the process of oxidation the cells are burned. Every beat of the heart, every movement of a muscle, etc., lead to waste. What we eat and drink takes the place of what is used up by oxidizing the cells and tissues. During the first twenty-five years of life—the period of growth—the body increases in weight usually from 15 to 20 times, using the food that we eat as the source of the new body substance.

Foods are classified into 5 classes: proteins, fats, carbohydrates, mineral matter, and water; though some food substances do not properly belong to any of these classes.

Proteins contain carbon, hydrogen, oxygen, and nitrogen.

Fats contain carbon, hydrogen, and oxygen.
Carbohydrates contain carbon, hydrogen, and oxygen.
Water contains hydrogen and oxygen.

Mineral matter consists of compounds of iron, calcium, potassium, sodium, magnesium, sulphur, phosphorous, chlorine, and fluorine. These are associated with the proteins and carbohydrates in the various tissues and fluids of the body.

Proteins, mineral matter, and water build tissues.
Carbohydrates, fats, and proteins give heat and energy.
Foods are also classified because of their sources from which they are derived; such as, Animal and Vegetable.

CLASSES OF FOOD.

I. Carbohydrates—Starch, as in potato, corn, rice, etc. Insoluble in water.
  Sugar—cane, beet, maple, malt, fruit. Soluble in water.
  Cellulose—cell walls of plants. Insoluble.
  Pectin—found in fruits and some vegetables; causes juices to gelatinize.

II. Vegetable Acids—Malic, oxalic, citric, tartaric. Decomposition products of starch or sugar. Soluble.

III. Proteins always contain nitrogen and are called nitrogenous foods. Called tissue builders because their office is to build and repair tissues.
  True proteins:
  Albumen, as in eggs; casein, as in milk; myosin, as in meat; firbrin, as in meat; gluten, as in wheat; legumin, as in peas and beans.

IV. Fats store up heat and energy to be used as needed and form the fatty tissues of the body.
  1. Fixed fats, butter, lard, olive oil.
  2. Volatile oils, found in orange and lemon skins, onions. Soluble and volatile.
  3. Fats that contain growth determinants like butter and beef suet.

V. Mineral Matter—builds up bone and other tissues, aids digestion, and purifies the blood. Lime in milk, sulphur in eggs, phosphorous in wheat.

VI. Water.

VII. Vitamines.

A diet composed of the five classes of foodstuffs, proteins, fats, carbohydrates, minerals and water, is not all that is needed for the maintenance of life and normal growth.

The outer coatings of grains and cereals and the quality of freshness in vegetables, have been shown to be of great importance in known bodily nutrition. To these little known substances has been applied the name of vitamines or growth determinants.

It is believed that there are two classes of vitamines, both of which are present in various foods in minute quantities.

1st class. The fat soluble A—so called because it is soluble in fat. It is present in milk, butter, beef, fat, especially in the fat within the organs, in egg yolk, cod liver oil and in leaf vegetables.

2nd class. The water soluble B—is found in many products, milk, vegetables, fruits, meat and whole cereals but is absent from fats, sugar and cereal products like white flour from which the outer parts of the grain have been removed.

The belief in vitamines has proceeded from the study of certain diseases the cures for which were found by giving the patient the particular lacking nutritive substances. The compound, the want of which produces such disastrous results, deserves to be called a vitamine or growth determinant.

How these substances act we do not know, but we must imagine that they act like a drug on some of the organs of the body and take the place of or give rise to some of the hormones which are essential for the orderly working of the different organs of the body. The more numerous the foods we eat the more certain we are to include all of the minor compounds we require. The ordinary mixed diet of the American people, provided it contains milk or butter and vegetables is not likely to be low in vitamines.

For reference see McCullum's—"The Newer Knowledge of Nutrition," published by MacMillan Company.

A calorie is the amount of heat necessary to raise one pound of water four degrees Fahrenheit.

Our diet should contain on the average—10-15% protein, rest carbohydrates and fats.

The day's requirement of calories should be divided into three meals—¼ for breakfast, ½ for dinner, and ¼ for supper.

Cereals contain protein and carbohydrates in proportion of about 1:7.

Nature supplies us with a great abundance of foods, but the majority of foods require some cooking before they are ready for consumption. Cooking has been defined as the preparation of foods for the table by means of heat.

Cooking kills bacteria.

Cooking makes food more digestible.

Cooking makes food more attractive and palatable.

TABLE OF RELATIVE FOOD REQUIREMENTS.

Age	Weight	Food Requirements
1— 2 Years	20— 27 Pounds	900—1200 Calories
2— 5 "	27— 41 "	1200—1500 "
6— 9 "	45— 59 "	1400—2000 "
10—13 "	65— 88 "	1800—2200 "
14—17 " Boys	94—125 "	2500—3000 "
Girls	94—109 "	2200—2600 "

For Reference see Rose—Laboratory Manual of Dietetics.

PERCENTAGE OF FOOD CONSTITUENTS.

	Protein	Carbo-Hydrates	Fat	Mineral Matter	Serving	
					Ounces	Calories
Apples	4.0	14.2	0.5	24.0	7.49	100
Asparagus	1.8	3.3	0.2	0.44	3.17	20
Bacon	10.5	---	64.8	---	.82	1.33
Banana	1.3	22.0	0.6	0.88	5.5	100
Beef—lean	18.9	---	12.2	0.61	2.5	258
Beans	18.1	65.0	1.5	3.53	1.02	100
Beets	1.6	9.7	0.1	0.76	2.38	25
Blackberries	1.3	10.9	1.0	0.32	3.05	50
Bread—Graham	8.9	52.1	1.8	0.79	2.7	200
Bread—White	9.1	5.33	1.6	00.38	2.76	200
Butter	1.0	---	85.0	0.07	.46	100
Butter milk	3.0	4.8	0.5	0.71	7.21	25
Cabbage	1.6	5.6	0.3	0.79	2.8	25
Carrots	1.1	9.3	0.4	00.75	0.5	50
Cauliflower	1.8	4.7	0.5	0.84	2.0	16.2
Celery	1.1	3.3	0.1	0.92	2.1	8.3
Cheese	28.8	0.3	35.9	4.7	0.8	100
Chicken	21.5	---	2.5	1.4	5.53	100
Chocolate	12.9	30.3	48.7	1.5	58.0	100
Corn (canned)	2.8	19.0	1.2	0.53	9.0	100
Corn Meal	9.2	75.4	1.9	0.77	0.99	100
Cowpeas—Dried	21.4	60.8	1.4	2.82	1.03	100
Crackers—Soda	9.8	73.1	9.1	00.52	0.42	50
Cream	2.5	4.5	18.5	0.68	.93	100
Eggs	13.4	---	10.5	0.94	2.69	100
Flour	10.8	74.8	1.1	0.578	1.	100
Ham	25.0	---	14.4	0.01	3.0	250
Hominy	8.3	79.0	0.6	---	1.0	100
Honey	0.4	81.2	---	0.6	1.	92
Lamb	19.1	---	23.6	---	1.9	200
Lard	---	---	100.0	---	1.	256
Lemons	1.0	8.5	0.7	0.32	1	8.69
Lettuce	1.2	2.9	0.3	.67	2.41	12.5
Macaroni	13.4	74.1	0.9	---	.99	100
Milk	8.8	54.1	8.3	.79	5.1	100
Molasses	2.4	69.3	---	.63	1.23	100
Mutton	15.6	---	30.9	---	3.1	200
Oatmeal	16.1	67.5	7.2	2.03	.89	100
Okra	1.6	7.4	0.2	---	4.0	32.85
Onions	1.6	9.9	0.3	0.84	4.15	50
Oranges	0.8	11.6	0.2	0.88	1.8	33
Oysters	6.2	3.7	1.2	---	---	25
Parsnip	1.6	13.5	0.5	0.39	8.26	112.8
Peaches—Fresh	0.7	9.8	0.1	0.37	0.63	50
Peanuts	25.8	38.	38.6	2.49	6.37	75
Pears—Green	7.0	16.9	5.0	0.78	---	100
Pork	16.6	---	30.1	---	3.0	465
Potatoes—Irish	2.2	---	30.1	1.2	5.27	200
Potatoes—Sweet	1.8	18.8	0.1	0.81	3.58	100
Rice	2.1	27.8	.7	0.79	1.31	100
Spinach	8.0	75.5	0.3	2.63	1.01	100
Sugar	2.1	79.0	---	53.0	5.0	100
Tomatoes—Fresh	.9	3.9	0.4	51.0	3.9	25
Turnips	1.3	8.1	0.2	31.0	6.8	50

DAY'S DIETARY FOR CHILD FROM 2 TO 5.

Fuel Requirements 1100-1600 Calories—First Day

	Food	Amount	Calories
Breakfast 7:30	Orange Juice	3-4 tb.	25-50
	Cereal (well cooked)	1/4 cup	50-75
	Top Milk	2-4 tb.	50-100
	Toast	1-3 slice	50-100
	Milk	2/3 cup	100-150
Lunch 10:30	Milk	1 cup	170
	Bread and Butter	1 slice	50-75
Dinner 1:00	Vegetable Soup	2/3 cup	100
	Baked Potato	1 medium	100-150
	Milk	1/3 cup	56
	Bread	1 slice	50
	Butter	1 tsp.	32
	Tapioca	2/3 cup	100
Lunch 4:00	Baked Apple		25-150
	Note: Any mild stewed fruit good		
Supper 6:00	Soft cooked Egg	1	50-75
	Milk	1 cup	170
	Bread	1 slice	50-100

DAY'S DIETARY FOR CHILD FROM 2 TO 5.

Fuel Requirements 1100-1600 Calories—Second Day

	Food	Amount	Calories
Breakfast 7:30	Orange Juice	3 to 4 tb.	25-50
	Cream of Wheat	1/4 cup	50-75
	Top Milk	2 to 4 tb.	50-100
	Stale Bread	1 slice	50
	Milk	2/3 cup	100-150
Lunch 10:30	Milk	1 cup	170
	Bread and Butter	1 slice	50-75
Dinner 1:00	Cream of Potato Soup	2/3 cup	100-150
	Soft Cooked Egg	1	50-75
	Toast	1 slice	50
	Bread and Butter	1 slice	82
	Rice Pudding	2/3 cup	100
Lunch 4:00	Prune Pulp	2 tb.	100
	Milk	3/4 cup	125
	Bread	1 slice	50
			100
Supper 6:00	Milk Toast	2 slices 2/3 cup	100

DAY'S DIETARY FOR CHILD FROM 5 TO 7.
Fuel Requirements 1400-1700 Calories—First Day

	Food	Amount	Calories
Breakfast 7:30	Prunes	4 to 8 prunes	50-100
	Cereal (well cooked)	1/3-1/2 cup	50-100
	Milk (for cereal)	1/7 cup	25
	Butter	1/2 to 1 tb	50-100
	Toast	1 slice	50-100
	Milk	2/3 cup	100
Lunch 10:30	Bread and Butter	1 slice	50-70
	Milk	2/3 cup	100
Dinner 1:00	Cream of Celery Soup	2/3 cup	100
	Toasted Croutons	27	100
	Spinach	1/2 cup	33
	Bread	2 slices	100
	Butter	1/2 tb.	50
	Baked Apple	1	100
Lunch 4:00	Graham Cracker	2	75-100
	Milk	1/2 cup	85
Supper 6:00	Baked Potato	1 medium	100-150
	Bread	2 slices	100
	Milk	3/4 cup	125
	Rice Pudding	1/2 cup	200

DAY'S DIETARY FOR CHILD FROM 5 TO 7.
Fuel Requirements 1400-1700 Calories—Second Day

	Food	Amount	Calories
Breakfast 7:30	Oatmeal (well cooked)	1/3 to 1/2 c.	50-100
	Milk (for Cereal)	1/7 cup	25
	Butter	1/2 to 1 tb.	50-100
	Stale Bread	1 slice	50
	Milk	2/3 cup	100
Lunch 10:30	Baked Apple	1	100
	Graham Crackers	2	100
Dinner 1:00	Baked Potato	1 medium	150
	Chicken	4″ slice	100
	Bread	2 slices	100
	Butter	1/2 tb.	50
	Milk Sherbet (Lemon)	1/2 cup	200
	Lady Finger	1-2	50
Lunch 4:00	Bread and Milk	2 slices 1/2 cup	100 85
Supper 6:00	Soft cooked Egg	1	50-75
	Toast	2 slices	100
	Milk	3/4 cup	125
	Tapioca	2/3 cup	100

DAY'S DIETARY FOR CHILD FROM 7 TO 10.
Fuel Requirements 1600-2000 Calories—First Day

	Food	Amount	Calories
Breakfast 7:30	Orange	1 large	100
	Cereal (well cooked)	2/3 cup	100-125
	Cream	4 tb.	100
	Toast	2 slices	100
	Butter	1/2 tb.	50
	Milk	3/4 cup	125
Lunch (Mid-morning)	Apple or Banana	1	75-125
Dinner 12:30	Hamburg Steak	1 ball	75
	Baked Sweet Potato	1 medium	150
	Bread	2 slices	100
	Butter	1 tb.	100
	String Beans	2/3 cup	22
	Bread Pudding with Dates	3/4 cup	200
	Milk	3/4 cup	125
Supper 6:00	Creamed Egg	1 egg, 1/3 cup cream sauce	100-125
	Bread	2 slices	100
	Jelly	1 tb.	50-75
	Sponge Cake	2″ x 2 3/4″	86
	Milk	2/3 cup	100

DAY'S DIETARY FOR CHILD FROM 7 TO 10.
Fuel Requirements 1700-2000 Calories—Second Day

	Food	Amount	Calories
Breakfast 7:30	Stewed Peaches	1/2 cup	100
	Cereal (well cooked)	2/3 cup	100-125
	Cream	4 tb.	100
	Toast	2 slices	100
	Butter	1/2 tb.	50
	Milk	3/4 cup	125
Lunch (Mid-morning)	Fresh Fruit		75-125
Dinner 12:30	White Meat of Chicken	Slice 4″x2½″x¼″	100
	Rice and Gravy	1/2 cup	85-100
	Spinach	1/2 cup	33
	Cornbread	2″x2″x1″	100
	Cup Custard	1/2 cup	150
	Butter	1 tb.	100
Supper 6:00	Egg Omelet	1 egg	100-125
	Bread	2 slices	100
	Butter	1/2 tb.	50
	Milk	2/3 cup	100
	Gingerbread	2″x2 1/2″x1 1/2″	150
	Chocolate Cornstarch Pudding	1/2 cup	200

DAY'S DIETARY FOR CHILD FROM 11 TO 14.

Fuel Requirements 1800-2050 Calories—First Day

	Food	Amount	Calories
Breakfast 7:30	Dates	7	150
	Cereal	2/3 cup	100-125
	Cream	4 tb.	100
	Toast	2 slices	100
	Milk	1 cup	170
	Scrambled Eggs	1-2	75-150
Lunch 12:30	Rice and Cheese	1/2 cup	225-250
	Bread	2 slices	100
	Jelly	2 tb.	75-150
	Milk	2/3 cup	100
Dinner 6:00	Beef Stew with Vegetables	2/3 cup	200-250
	Baked Potato	1 medium	100-150
	Lettuce and Tomato Salad with French Dressing	1 medium serving	150-200
	Ice Cream	1/2 cup	200-250
	Cake (chocolate)	2½″x2½″x⅞″	100

DAY'S DIETARY FOR CHILD FROM 11 TO 14.

Fuel Requirements 1800-2050 Calories—Second Day

	Food	Amount	Calories
Breakfast 7:30	Cereal	2/3 cup	100
	Cream	4 tb.	100
	Bacon	2 slices	50
	Fried Apples	1/2 apple	100
	Toast	2 slices	100
	Butter	1/2 tb	50
Lunch 12:30	Cream Beef on Toast	1/3 cup, 1 slice	150
	Baked Bananas	1/2 banana	50
	Boston Brown Bread	2 slices	200
	Milk	2/3 cup	100
Dinner 6:00	Baked Fish with white sauce	3″x2″x1″	115
	Mashed Potatoes	1 medium	100-150
	String Beans	3/4 cup	25
	Bread	2 slices	100
	Buter	1 tb.	100
	Milk	2/3 cup	100
	Date Pudding with liquid sauce	2″x2″x1 1/2″	250

DAY'S DIETARY FOR PERSON 14 TO 18.

Fuel Requirements 2000-3000 Calories—First Day

	Food	Amount	Calories
Breakfast 7:30	Peaches	1 large	100
	Cereal	1 cup	100-150
	Top Milk	3/8 cup	100
	Milk	2/3 cup	100
	Bread	2 slices	100
	Butter	1 tb.	100
Lunch 12:30	Macaroni and Cheese	1 cup	200
	Baking Powder Biscuit	3 small	125
	Butter	1 tb.	100
	Cocoa	3/4 cup	175-200
	Gingerbread	2″x2″x2″	200-225
Dinner 6:00	Broiled Steak	2″x2″x1″	100-125
	Baked Sweet Potato	1 medium	100
	Stuffed Peppers	1 small	100
	Fruit Salad	1/2 cup	75-100
	Corn Bread	2″x2″x1″	100
	Butter	1 tb.	100
	Peach Ice Cream	1/2 cup	200

DAY'S DIETARY FOR PERSON 14 TO 18.

Fuel Requirements 2000-3000 Calories—Second Day

	Food	Amount	Calories
Breakfast 7:30	Fruit	1	50-100
	Cereal	1 cup	100-150
	Cream	4 tb.	100
	Milk	2/3 cup	100
	Toast	2 slices	100
	Butter	1 tb.	100
Lunch 12:30	Creamed Egg	1	100-125
	Date and Nut Sandwich	3 (3″x3″x4″)	250-300
	Baked Apple	1 small	140
	Whipped Cream	2 tb.	50
Dinner 6:00	Vegetable Soup	3/4 cup	50-100
	Croutons	27	100
	Creamed Chicken	1/2 cup	200
	on Toast	1 slice	50
	Corn on Cob	1 (6″)	50
	Tomato and Lettuce Salad with French dresing	1 medium serving	150-200
	Biscuit	3 small	125
	Butter	1 tb.	100
	Cream Pie with meringue	1 piece 3″ in cir.	200

NATIONAL SCALE: HEIGHT AND WEIGHT OF CHILDREN

AGE	BOYS			GIRLS		
	Height Inches	Weight Lb.	Oz.	Height Inches	Weight Lb.	Oz.
Birth	20½	7	10	20½	7	3
3 Months	23½	13	0	23¼	12	4
6 Months	26½	18	0	25¾	16	12
9 Months	28	20	6	27½	19	2
12 Months	29¼	21	14	28¾	20	12
18 Months	31¾	24	10	31	23	6
24 Months	33¾	27	2	33¼	26	6
30 Months	35¼	29	8	34¾	28	4
36 Months	37	32	4	36¾	30	8
42 Months	38½	33	12	38	32	8
48 Months	39½	35	14	39	33	12
5 Years	41½	41	2	41¼	39	11
6 Years	43¾	45	3	43½	43	5
7 Years	45¾	49	2	45½	47	8
8 Years	47¾	53	14	47½	52	0
9 Years	49¾	59	3	49½	57	2
10 Years	51¾	65	5	51¼	62	6
11 Years	53¼	70	3	53½	68	13
12 Years	55	76	14	56	78	5
13 Years	57¼	84	13	58¼	88	11
14 Years	60	94	14	60	94	6
15 Years	62¼	107	2	61	106	2
16 Years	65	121	0	61½	112	0

To Parent or Teacher: Weigh and measure child once each month. If any marked variation from the standard height and weight is noted a physician should be consulted.

Teachers are urged to assist in securing accurate data and to make it a part of the general school record of each child.

The greatest wealth of Alabama lies in her future citizens.

Note: Abbreviations used in day's dietaries—tb, tablespoon; tsp, teaspoon; cir. circumference.

SUMMER SCHOOL

Alabama Girls Technical Institute
Montevallo, Alabama

June and July, 1919

For teachers, home makers, high school and grade students.

Courses in Education for extension of Certificates, and for preparation for State Examinations.

The Home Economics department will include the various branches in Domestic Science, Domestic Art, Manual Training, Drawing, Handicrafts—well arranged for the needs of teachers and the practical housekeeper. Special arrangements for Vocational Home Economics.

Courses in English, Mathematics, History, Chemistry, Physics, Agriculture, Bacteriology, Botany, Plant Culture, Expression and Dramatics for regular college students, for those preparing to enter college or high school and for anyone wishing to study for general culture.

Play ground supervision and general athletic work will receive special attention.

For further information address:

T. W. PALMER,
President.